

**SLOVENSKI
STANDARD**

SIST EN 61851-22:2002

prva izdaja
september 2002

Electric vehicle conductive charging system - Part 22: AC electric vehicle charging station (IEC 61851-22:2001)

**iTeh STANDARD PREVIEW
(standards.iteh.ai)**

SIST EN 61851-22:2002
<https://standards.iteh.ai/catalog/standards/sist/4fe078b9-332f-4486-ab14-4bed31d144e1/sist-en-61851-22-2002>

ICS 43.120

Referenčna številka
SIST EN 61851-22:2002(en)

iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN 61851-22:2002

<https://standards.iteh.ai/catalog/standards/sist/4fe078b9-332f-4486-ab14-4bed31d144e1/sist-en-61851-22-2002>

EUROPEAN STANDARD

EN 61851-22

NORME EUROPÉENNE

EUROPÄISCHE NORM

January 2002

ICS 43.120

English version

**Electric vehicle conductive charging system
Part 22: AC electric vehicle charging station
(IEC 61851-22:2001)**

Système de charge conductive
pour véhicules électriques
Partie 22: Borne de charge conductive
en courant alternatif pour véhicules
électriques
(CEI 61851-22:2001)

Konduktive Ladesysteme
für Elektrofahrzeuge
Teil 22: Wechselstrom-Ladestation
für Elektrofahrzeuge
(IEC 61851-22:2001)

**iTeh STANDARD PREVIEW
(standards.iteh.ai)**

[SIST EN 61851-22:2002](#)

This European Standard was approved by CENELEC on 2001-12-04. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of document 69/129/FDIS, future edition 1 of IEC 61851-22, prepared by IEC TC 69, Electric road vehicles and electric industrial trucks, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61851-22 on 2001-12-04.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2002-10-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2005-01-01

This European Standard shall be read in conjunction with EN 61851-1.

Annexes designated "normative" are part of the body of the standard.

In this standard, annex ZA is normative.

Annex ZA has been added by CENELEC.

iTeh STANDARD REVIEW Endorsement notice (standards.iteh.ai)

The text of the International Standard IEC 61851-22:2001 was approved by CENELEC as a European Standard without any modification.

SIST EN 61851-22:2002

In the official version, for Bibliography, the following notes have to be added for the standards indicated:
<https://standards.iteh.ai/catalog/standard/sist/en/61851-22-2002>

| | | |
|----------------|------|---|
| IEC 60309-1 | NOTE | Harmonized as EN 60309-1:1999 (not modified). |
| IEC 60364-5-54 | NOTE | Harmonized as HD 384.5.54 S1:1988 (modified). |
| CISPR 11 | NOTE | Harmonized as EN 55011:1998 (modified). |
| CISPR 14 | NOTE | Harmonized as EN 55014 Series (not modified). |

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

| <u>Publication</u> | <u>Year</u> | <u>Title</u> | <u>EN/HD</u> | <u>Year</u> |
|----------------------|-------------|---|-------------------|--------------|
| IEC 60038 (mod) | 1983 | Nominal voltages for low-voltage public electricity supply systems | HD 472 S1 + A1 | 1989 1995 |
| IEC 60068-2-1 | 1990 | Environmental testing Part 2: Tests - Tests A: Cold | EN 60068-2-1 | 1993 |
| IEC 60068-2-2 | 1974 | Part 2: Tests - Test B: Dry heat | EN 60068-2-2 1) | 1993 |
| IEC 60068-2-3 | 1969 | Part 2: Tests - Test C: Damp heat, steady state | HD 323.2.3 S2 2) | 1987 |
| IEC 60068-2-5 | 1975 | Part 2: Tests - Test Sa: Simulated solar radiation at ground level SIST EN 61851-22-2002 https://standards.tech.catalog.standards/sist/4fe07869-332f-4486-ab14-4bed31d144e1/sist-en-61851-22-2002 | EN 60068-2-5 | 1999 |
| IEC 60068-2-14 | 1984 | Part 2: Tests - Test N: Change of temperature | EN 60068-2-14 3) | 1999 |
| IEC 60068-2-30 | 1980 | Part 2: Tests - Test Db and guidance: Damp heat, cyclic (12 + 12 hour cycle) | EN 60068-2-30 4) | 1999 |
| IEC 60068-2-52 | 1996 | Part 2: Tests - Test Kb: Salt mist, cyclic (sodium chloride solution) | EN 60068-2-52 | 1996 |
| IEC 60068-2-75 | 1997 | Part 2-75: Tests - Test Eh: Hammer tests | EN 60068-2-75 | 1997 |
| IEC 60364-4-43 (mod) | 1977 | Electrical installations of buildings Part 4: Protection for safety -- Chapter 43: Protection against overcurrent | HD 384.4.43 S2 5) | 2001 |

1) EN 60068-2-2 includes supplement A:1976 to IEC 60068-2-2.

2) HD 323.2.3 S2 includes A1:1984 to IEC 60068-2-3.

3) EN 60068-2-14 includes A1:1986 to IEC 60068-2-14.

4) EN 60068-2-30 includes A1:1985 to IEC 60068-2-30.

5) HD 384.4.43 S2 includes A1:1997 to IEC 60364-4-43.

| <u>Publication</u> | <u>Year</u> | <u>Title</u> | <u>EN/HD</u> | <u>Year</u> |
|------------------------------------|--------------|---|--|--------------|
| IEC 60364-4-443 (mod) | 1995 | Part 4: Protection for safety -- Chapter 44: Protection against overvoltages - Section 443: Protection against overvoltages of atmospheric origin or due to switching | HD 384.4.443 S1 | 2000 |
| A1 | 1998 | | - | - |
| IEC 60439-1 | 1999 | Low-voltage switchgear and controlgear assemblies Part 1: Type-tested and partially type-tested assemblies | EN 60439-1 | 1999 |
| IEC 60529 | 1989 | Degrees of protection provided by enclosures (IP Code) | EN 60529 + corr. May | 1991 1993 |
| IEC 60664-1 (mod) | 1992 | Insulation coordination for equipment within low-voltage systems Part 1: Principles, requirements and tests | HD 625.1 S1 + corr. November | 1996 1996 |
| IEC 60950 (mod) + corr. January | 1999 2000 | Safety of information technology equipment | EN 60950 | 2000 |
| IEC 61000-2-2 | 1990 | Electromagnetic compatibility (EMC) Part 2: Environment -- Section 2: Compatibility levels for low-frequency conducted disturbances and signalling in public low-voltage power supply systems | EN 61000-2-2 SIST EN 61851-22:2002 | - |
| IEC 61000-3-2 (mod) | 2000 | Part 3-2: Limits - Limits for harmonic current emissions (equipment input current up to and including 16 A per phase) | EN 61000-3-2 41e078b9-332f-4486-ab14-4bd31d14e1/sist-en-61851-22-2002 | 2000 |
| IEC 61000-4-1 | 2000 | Part 4-1: Testing and measurement techniques - Overview of IEC 61000-4 series | EN 61000-4-1 | 2000 |
| IEC 61000-4-2 | 1995 | Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test | EN 61000-4-2 | 1995 |
| A1 | 1998 | | A1 | 1998 |
| A2 | 2000 | | A2 | 2001 |
| IEC 61000-4-3 (mod) | 1995 | Part 4-3: Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test | EN 61000-4-3 | 1996 |
| A1 | 1998 | | A1 | 1998 |
| A2 | 2000 | | A2 | 2001 |
| IEC 61000-4-4 | 1995 | Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test | EN 61000-4-4 | 1995 |
| A1 | 2000 | | A1 | 2001 |

THE STANDARD REVIEW (standards.iteh.ai)

<https://standards.iteh.ai/catalog/standards/sist/4fe078b9-332f-4486-ab14-4bd31d14e1/sist-en-61851-22-2002>

| <u>Publication</u> | <u>Year</u> | <u>Title</u> | <u>EN/HD</u> | <u>Year</u> |
|--------------------|-------------|---|--------------------------|--------------|
| IEC 61000-4-5 | 1995 | Part 4-5: Testing and measurement techniques - Surge immunity test | EN 61000-4-5 | 1995 |
| IEC 61000-4-11 | 1994 | Part 4-11: Testing and measurement techniques - Voltage dips, short interruptions and voltage variations immunity tests | EN 61000-4-11 | 1994 |
| IEC 61036 | 1996 | Alternating current static watt-hour meters for active energy (classes 1 and 2) | EN 61036 | 1996 |
| IEC 61180-1 | 1992 | High-voltage test techniques for low-voltage equipment | EN 61180-1 | 1994 |
| CISPR 16 | Series | Specification for radio disturbance and immunity measuring apparatus and methods | - | - |
| CISPR 22 (mod) | 1997 | Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement | EN 55022 + corr. July | 2001 2001 |

iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN 61851-22:2002
<https://standards.iteh.ai/catalog/standards/sist/4fe078b9-332f-4486-ab14-4bed31d144e1/sist-en-61851-22-2002>

iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN 61851-22:2002

<https://standards.iteh.ai/catalog/standards/sist/4fe078b9-332f-4486-ab14-4bed31d144e1/sist-en-61851-22-2002>

NORME INTERNATIONALE INTERNATIONAL STANDARD

CEI
IEC
61851-22

Première édition
First edition
2001-05

Système de charge conductive pour véhicules électriques –

Partie 22:
Borne de charge conductive en courant alternatif
iTph STANDARD REVIEW
(standards.iteh.ai)

SIST EN 61851-22:2002
<https://standards.iteh.ai/catalog/standard/sist-en-61851-22-2002>
Electric vehicle conductive charging system –

Part 22:
AC electric vehicle charging station

© IEC 2001 Droits de reproduction réservés — Copyright - all rights reserved

Aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'éditeur.

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the publisher.

International Electrotechnical Commission
Telefax: +41 22 919 0300

3, rue de Varembé Geneva, Switzerland
e-mail: inmail@iec.ch IEC web site <http://www.iec.ch>



Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

CODE PRIX
PRICE CODE

S

*Pour prix, voir catalogue en vigueur
For price, see current catalogue*

CONTENTS

| | |
|---|----|
| FOREWORD | 7 |
| 1 Scope | 11 |
| 2 Normative references | 11 |
| 3 Definitions..... | 15 |
| 4 General requirements..... | 15 |
| 5 Standard conditions for operation in service and for installation | 15 |
| 6 Rating of the a.c. input and output | 15 |
| 7 General test requirements | 17 |
| 8 Functional and constructional requirements | 17 |
| 8.1 Control functions..... | 17 |
| 8.2 Emergency service..... | 17 |
| 8.3 Permissible surface temperature | 17 |
| 8.4 Charging station protection degree (IP) | 19 |
| 8.5 Storage means for the cable assembly | 19 |
| 8.6 Location of the socket-outlet and storage means for the connector | 19 |
| 8.7 Extension cord | 19 |
| 8.8 Metering | 19 |
| 9 Electrical safety..... SISTEN 61851-22:2002 | 19 |
| 9.1 Protections against indirect contact and short circuit /iec/60731-2-33/IEC 61438-6 ab14 | 19 |
| 9.2 Earthing electrode and continuity /iec/61438-1/ist-en-61851-22-2002 | 21 |
| 9.3 Detection of the electrical continuity of the protective conductor..... | 21 |
| 10 Dielectric test requirements | 21 |
| 10.1 Dielectric withstand characteristics | 21 |
| 10.1.1 Dielectric withstand voltage | 21 |
| 10.1.2 Impulse dielectric withstand (1,2/50 µs) | 23 |
| 10.1.3 Insulation resistance | 23 |
| 10.2 Touch current..... | 23 |
| 10.3 Protection measures | 25 |
| 10.4 Creepage and clearance distances | 25 |
| 11 Environmental tests..... | 25 |
| 11.1 Climatic environmental tests..... | 25 |
| 11.1.1 General..... | 25 |
| 11.1.2 Ambient air temperature | 25 |
| 11.1.3 Dry heat | 25 |
| 11.1.4 Ambient humidity..... | 25 |
| 11.1.5 Cold test | 27 |
| 11.1.6 Ambient air pressure | 27 |
| 11.1.7 Solar radiation (optional) | 27 |
| 11.1.8 Saline mist (optional)..... | 27 |

| | |
|--|----|
| 11.2 Mechanical environmental tests..... | 27 |
| 11.2.1 General..... | 27 |
| 11.2.2 Mechanical impact..... | 27 |
| 11.2.3 Stability | 29 |
| 11.3 Electromagnetic environmental tests | 29 |
| 11.3.1 Immunity to EM disturbances..... | 29 |
| 11.3.2 Immunity to electrostatic discharges | 29 |
| 11.3.3 Emitted EM disturbances | 35 |
| 12 Specific socket-outlet/connector requirements | 39 |
| 13 Classification | 39 |
| 14 Marking and instructions..... | 39 |
| 14.1 Connection instructions | 39 |
| 14.2 Legibility | 39 |
| 14.3 Marking of a.c. electric vehicle charging station | 39 |
| Bibliography | 41 |
| Figure 1 – Limit levels of conducted emission (a.c. input terminal)..... | 35 |
| Figure 2 – Limit levels of conducted emission (signal I/O and control) | 37 |
| Figure 3 – Limit levels of radiated emission..... | 37 |
| Table 1 – Values of output voltage and current rating..... | 17 |
| Table 2 – Touch current limits..... | 23 |

SIST EN 61851-22:2002
<https://standards.iteh.ai/catalog/standards/sist/4fe078b9-332f-4486-ab14-4bed31d144e1/sist-en-61851-22-2002>